CLAIMS

1. (previously presented) A ultra-wideband communication method, the method comprising the steps of:

providing an ultra-wideband device, the ultra-wideband device structured to transmit a plurality of ultra-wideband pulses at a first chip rate;

receiving a plurality of ultra-wideband pulses at a second chip rate; and

interpolating the received second chip rate pulses to the first chip rate.

2. (original) The method of claim 1, wherein the ultra-wideband device includes a rate controller that converts the plurality of ultra-wideband pulses from the second chip rate to the first chip rate.

3. (original) The method of claim 1, wherein each of the plurality of ultra-wideband pulses has duration that ranges from about ten picoseconds to about one millisecond.

4. (previously presented) The method of claim 1, wherein the plurality of ultra-wideband pulses are orthogonal frequency division multiplexed.

5. (previously presented) The method of claim 1, wherein the plurality of ultra-wideband pulses comprise codes selected from a group consisting of: hierarchical codes, Golay codes, orthogonal Golay codes, m-sequence codes, Kasami codes, and Walsh codes.

6. (previously presented) A ultra-wideband communication method, the method comprising the steps of:

providing an ultra-wideband device that includes a rate controller, the ultra-wideband device structured to transmit a plurality of ultra-wideband pulses at a first chip rate;

receiving a plurality of ultra-wideband pulses at a second chip rate; and

converting the received second chip rate pulses to the first chip rate.

7. (original) The method of claim 6, wherein the step of converting the received second chip rate pulses to the first chip rate comprises passing the received second chip rate pulses through the rate controller.

8. (original) The method of claim 6, wherein each of the plurality of ultra-wideband pulses has duration that ranges from about ten picoseconds to about one millisecond.

9. (previously presented) The method of claim 6, wherein the plurality of ultra-wideband pulses are modulated, wherein the modulation is selected from a group consisting of: orthogonal frequency division multiplexing, quadrature phase shift keying, biphase shift keying, differential phase shift keying, and Ternary modulation.

10. (previously presented) The method of claim 6, wherein the plurality of ultra-wideband pulses include codes selected from a group consisting of: hierarchical codes, Golay codes, orthogonal Golay codes, m-sequence codes, Kasami codes, and Walsh codes.

11. (original) A ultra-wideband communication method, the method comprising the steps of:

generating a first data frame, constructed to transmit data at a first data rate;

generating a second data frame, constructed to transmit data, at a second data rate; and

transmitting both the first and second data frames;

wherein either of, or both the first data frame and the second data frame are comprised of:

an automatic gain control section;

a power level section;

an automatic gain control tuning section; and

a synchronization section.

12. (original) The method of claim 11, wherein the automatic gain control section allows a receiver to adjust its automatic gain control.

13. (original) The method of claim 11, wherein the power level section allows a receiver to measure a power level of a receiver chain.

14. (original) The method of claim 11, wherein the automatic gain control tuning section allows a receiver to further adjust its automatic gain control.

15. (original) The method of claim 11, wherein the synchronization section allows a receiver to obtain synchronism between a received signal and a template.

16. (original) The method of claim 11, wherein the synchronization section allows a receiver to synchronize a time between a receiver and a transmitter.

17. (original) The method of claim 11, wherein the synchronization section allows a receiver to synchronize a frequency between a receiver and a transmitter.

18. (original) The method of claim 11, wherein the synchronization section comprises a plurality of discrete synchronization sequences, with at least one or more synchronization sequences having a reverse polarity relative to other individual synchronization sequences in the synchronization section.

19. (original) The method of claim 11, wherein the automatic gain control section, the power level section, the automatic gain control tuning section and the synchronization section comprise a frame preamble that is included within the first and second data frames.

20. (original) The method of claim 11, wherein the first and second data frames include a preamble that comprises:

a packet synchronization section;

a frame synchronization section; and

a channel estimation synchronization section;

wherein the packet synchronization section includes the automatic gain control section, the power level section, the automatic gain control tuning section and the synchronization section.